

## **6 LABORATORY SAFETY**

### **6.1 Introduction**

This Chapter highlights some general guidelines and rules that specifically apply to laboratory operations and serve only to supplement or highlight the Science and Ecosystems Support Division, Safety, Health and Environmental Management Program, Procedures and Policy Manual. Obviously, no set of rules can cover all possible situations. Therefore, in addition to adhering to these policies, each person is expected to exercise good judgement in all situations and to maintain a high level of safety consciousness.

#### **6.1.1 Policy**

It shall be the policy of the ASB that all activities be conducted in a manner that promotes a safe work environment. Safety takes priority over all other considerations. While Branch Management and the Branch Safety Officer are responsible for insuring that safety is a priority in the policy of operations, **all Branch employees must accept the responsibility** for acting in accordance with safety rules and practices and for reporting any observed safety hazards.

### **6.2 General**

**6.2.1** Lab coats and safety glasses should be worn at all times in laboratories. The exception to this is when personnel are working at computer terminals, microscopes or performing clerical work in the laboratory. When working with corrosives and/or toxic substances, lab coats should be left in the laboratory.

**6.2.2** Open sandals and shorts shall not be worn in laboratories.

**6.2.3** When working in any of the laboratories, it is recommended that all jewelry be removed and that personnel wash their hands frequently. Always wash hands thoroughly when leaving the laboratory.

**6.2.4** When working with flammable materials, nylon or other totally synthetic clothing should be avoided to minimize the possibility of static sparks.

**6.2.5** All containers should be labeled as to contents, with particular care to note corrosive or hazardous materials. Refer to Chapter 4 of the ASB LOQA Manual for additional guidance on labeling of waste containers and to Chapter 5 of the Safety, Health and Environmental Management Program, Procedures and Policy Manual.

**6.2.6** There will be no eating, drinking, or smoking in any laboratory.

**6.2.7** Glassware that is chipped but still usable, must be fire polished before use; otherwise it must be discarded.

**6.2.8** Never use any lab glassware as a container for food or drink.

**6.2.9** An inventory of all chemicals maintained in the laboratory will be prepared and updated on an annual basis.

**6.2.9.1** Chemical Inventories are managed by allowing maximum amounts in individual laboratories. The current chemical inventory contains the maximum allowable amount for each individual laboratory. **It is acceptable to have less than the inventory amount, but never more.** (Reference LOQA Manual, Chapter 4.)

**6.2.10** Return all chemicals to their proper storage areas after use.

**6.2.11** Never pipette by mouth.

**6.2.12** The Branch Safety Officer or designee shall conduct a safety inspection of ASB laboratories at least quarterly. Additionally, Branch Management and/or the Safety Officer may conduct unscheduled periodic walk-thru inspections as a general oversite for insuring safe operations.

**6.2.13** No perchloric acid or perchlorate salts will be stored in the ASB. If at any time these chemicals are required in a method, special precautions will be necessary and should be coordinated with the Chief of the Inorganic Chemistry or Organic Chemistry Section.

**6.2.14** Benzene will not be used in the laboratories of ASB.

**6.2.15** Housekeeping is an important aspect of maintaining a safe work environment. All work areas should be cleaned at the end of each work day. All spills should be cleaned up immediately.

**6.2.16** Samples should be in laboratories only during preparation and analysis; otherwise, keep them in the custody room, or proper volatile organic storage area.

**6.2.17** All stock standards of a toxic nature should be prepared in a hood and stored in designated areas. Only experienced personnel should handle these standards.

**6.2.18** Work of a hazardous nature will not be performed in a laboratory after normal business hours when only one person is present.

**6.2.19** In addition to the required initial lab safety training, it is the responsibility of the Section Chief and Lead Analysts to familiarize new employees with safety practices, location of safety equipment, and made aware of possible hazards in the areas in which they will be working.

**6.2.20** When conducting routine maintenance of electrical equipment, observe all shock hazard warnings displayed on instrumentation.

**6.2.21** Use safety guards where appropriate when using electrical equipment or ventilation/fumehood systems.

**6.2.22** Observe all cryoprotective warnings regarding cylinders and sample storage areas.

**6.2.23** When using pressurized systems, take care to tighten restraints before pressurizing system and depressurize system before loosening restraints.

### **6.3 Sample Receiving and Logging**

**6.3.1** When possible, determine the source of the samples and any special hazards that might be associated with them. (Reference LOQA Manual, Chapter 3.)

**6.3.2** Some samples, especially domestic waste when sealed in containers will build up pressure. Care should be taken in handling these type samples. Also, gloves should be used to handle these samples during analysis, due to the possibility of the transmission of a variety of human enteric pathogens that cause diseases.

**6.3.3** Broken samples should be handled with protective gloves and disposed immediately in accordance with appropriate disposal procedures.

**6.3.4** A small percentage of samples received by ASB would be characterized as concentrated waste. These samples require special handling as outlined in the LOQA Manual, Chapter 3.

### **6.4 Compressed Gases**

**6.4.1** Compressed gases should be handled in accordance with the Safety, Health, and Environmental Management Program, Procedures and Policy Manual.

**6.4.2** It is the responsibility of each Section to maintain the inventory of compressed gases used within their respective areas. Each Section Chief and/or work team must designate individual(s) to maintain these inventories.

### **6.5 Radioactivity**

**6.5.1** Electron Capture Detectors require wipe tests for radioactivity every six months.

**6.5.2** The Chemical Hygiene Officer (CHO) shall perform these tests, report results to the SESD SHEM Officer and maintain a record of the results.

**6.5.3** No ASB Staff person shall open or attempt to perform cleaning or maintenance on Electron Capture Detectors. Service shall be performed by proper shipment to a qualified vendor for cleaning and servicing of ECD detectors.

## **6.6 Laboratory Waste Disposal Practices**

**6.6.1** ASB is subject to the Resource Conservation and Recovery Act (RCRA) regulations as contained in the Georgia Rules for Hazardous Waste Management for handling, storage, and disposal of laboratory related wastes. While knowledge of the hazardous waste handling and disposal regulations is the primary responsibility of the Divisional SHEM Officer, each ASB staff member should become familiar with the basic policies and procedures for waste disposal as it pertains to his/her area. (Reference LOQA Manual, Chapter 4.)